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The Ottawa River Canal.

Its Advantages as a Route
FROM
Lake to Tidewater.

REPRINT OF AN ARTICLE

WHICH APPEARED IN

The New-York Times

JULY 16, 1895.

THE OTTAWA RIVER CANAL.

The transportation problem is to the fore, and that particular phase of it which has come to be realized as being of paramount importance to vast sections of the northern part of this continent, one whose solution involves the destinies of our farming communities of the West, may be summed up in the form: How is the traffic of the great lakes best and most cheaply to reach the seaboard?

In the early history of the traffic the genius of Clinton sought to solve the difficulty by the construction of the Erie Canal, an artificial waterway carried to completion in spite of great natural obstacles to its efficiency, and to this day an important factor in the grain-carrying trade in the matter of regulating rates. Canadian statesmen early appreciated the fact that the only available natural water courses from the lakes to the sea lay wholly or in great part within their territory, and, realizing in some measure the magnitude of the traffic that must eventually seek an outlet along the best and cheapest way, have from time to time spent large sums in improving the navigation of the St. Lawrence and Ottawa Rivers, with the view of retaining advantages so plainly possessed.

Railways have carried to ocean ports vast and increasing quantities of grain annually, so that many have thought to see in the growth of their carrying trade the inevitable destruction of canal and river traffic. But while railroads offer some features of superiority over other modes of carriage, particularly in the matter of rapidity of transit, these are counterbalanced by the increased risk and greater expense incurred. And although railroad rates have decreased, their limit of cheapness always remains considerably higher than that of rates of carriage by water, a fact which under present conditions is all important. The crying need of the grain-raising industry, after all is said and done, is not more rapid transportation, but lower cost of conveyance of its products. "He who can most cheaply reach the markets of

the world can control the markets of the world." And if the farmers of the great American West and Canadian Northwest are to retain a foreign market for their surplus products, and are not to be hustled off and supplanted by their South American and other competitors, nothing can more concern them than to discover the very cheapest way of reaching that market.

The unparalleled growth of population, increase of wealth, and development of resources in the country bordering upon and tributary to the great lakes is but the index and presage of the greater things yet to be expected of that region. Blessed with fertility of soil, rich mineral and forest wealth, a temperate climate, and the unequalled facilities for inland navigation afforded by the lakes, with their 4,000 miles of coast line, it must rapidly become one of the great centres of wealth and population in the world. The increasing number of vessels plowing those waters indicates the immense activities that are being set in motion year by year. According to the eleventh census reports, the tonnage of the American mercantile marine on the lakes increased during 1886-90 from 634,652 tons to 826,360 tons; and while the estimated value of the vessels employed in 1886 was \$30,597,450, four years later, in 1890, it had almost doubled, amounting to \$58,128,500. This increased tonnage consisted entirely of steam propellers, of which there were constructed during the four years 96 under 1,000 tons, 50 between 1,000 and 1,500 tons, and 89 over 1,500 tons. Perhaps the trend of events in this connection cannot be better exemplified than in the history of the Sault Ste. Marie Canal. Although it affords a measure merely of the traffic between the two lakes Superior and Huron, yet on the principle *ex pede Herculem*, it will aid in giving an idea of the extent and value of the whole of which it is a part.

In the year 1878, 1,091 vessels passed through the Sault Canal, while in 1889 the number was 9,579, of which 6,587 were steamers. During a little more than the same period the annual value of the

traffic increased from \$53,413,472 to \$83,733,527. In 1856 the registered tonnage using the canal was 101,458 tons; in 1889, 7,221,935 tons, the actual tonnage being about 300,000 tons more than that. For purpose of comparison it may be stated that in the latter year the total tonnage passing through the Suez Canal, that great international highway between Europe and the East, was 5,903,024 tons, or only 80 per cent. of that using the Sault Canal. The total tonnage of vessels engaged in the foreign trade entering the port of New-York in 1887 was 6,074,543 tons, or only 84 per cent. of the traffic between Lake Huron and the remote Superior. It has been estimated that the saving in cost of transportation effected by the Sault Canal up to 1889 over the same service performed by rail amounted to \$300,000,000.

In his message last year ex-Gov. Flower asserted with regard to the lake traffic: "In 1889 the tonnage is said to have been 10,000,000 greater than the combined entries and clearances of all the seaports of the United States, and 3,000,000 greater than the combined entries and clearances of Liverpool and London." According to Rand & McNally's atlas of the world, the total ton mileage of freight carried on the great lakes in 1889 was 15,518,360,000 ton miles, being 22.6 per cent. of the total ton mileage (68,727,223,146) of all the railways in the United States for the year ending June 30, 1889. Upward of 250,000,000 bushels of grain and mill products reached Lake Erie in 1892.

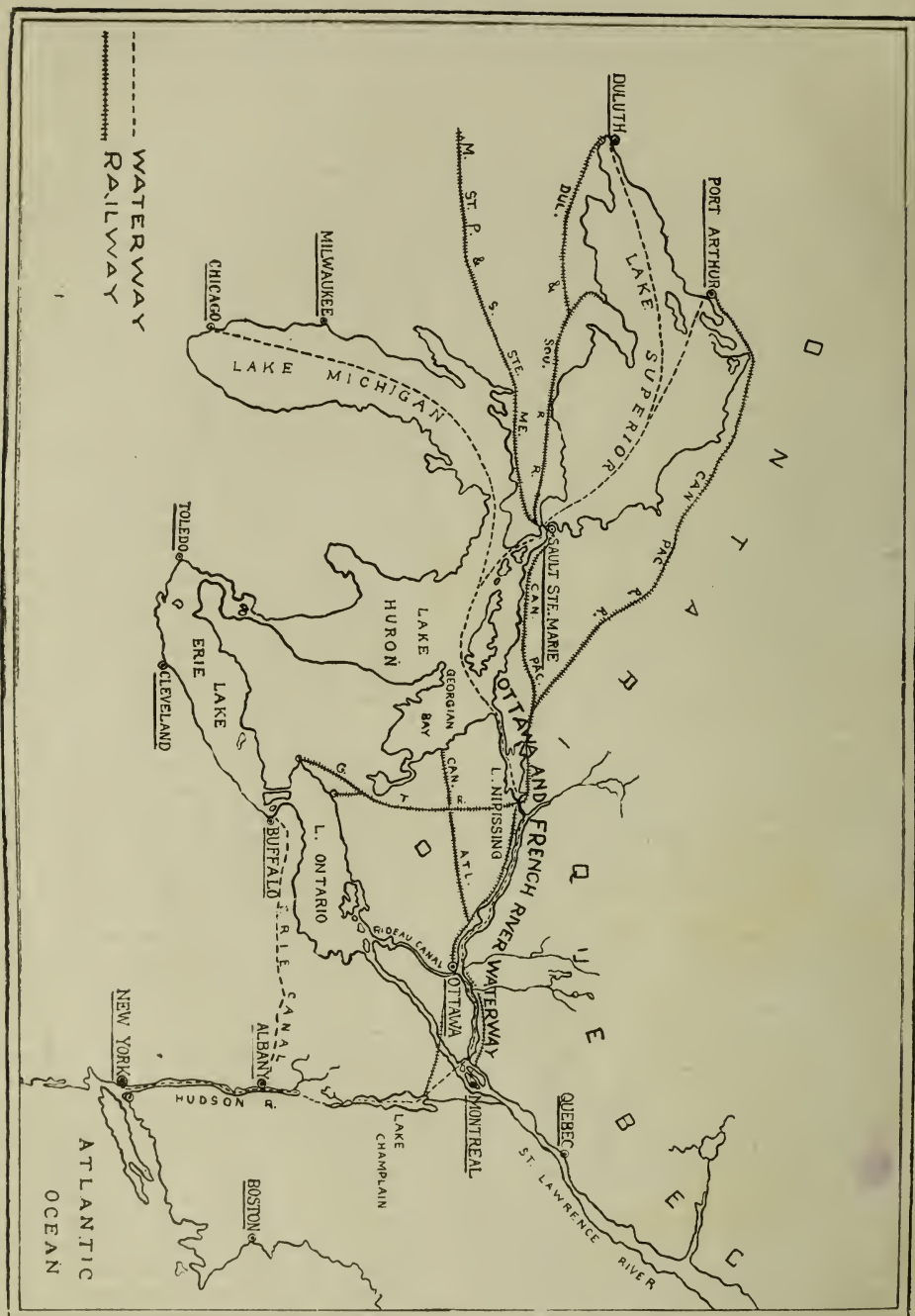
These figures, viewed in the light of commercial conditions of the day, the keen competition in the grain markets of the world, the imperious necessity for cheaper transportation in order that our farmers may successfully compete with those of other countries, and other prevailing circumstances, amply prove the question stated at the outset as one of the utmost importance. That question readily resolves itself into, What is the best practical waterway from the great lakes to the Atlantic? The proceedings at the World's Columbian Water Commerce Congress at Chicago in 1893 and at the Deep Waterways Convention at Toronto in 1894, the action of the New-York Legislature recently, and the various schemes submitted for their consideration; the activity of Canada in carrying to completion her deepening of the

St. Lawrence system of canals, and last, but not least, the action of Congress in authorizing the appointment of Commissioners to join a like number appointed by the Canadian Government to discuss international waterways, all go to show a keen realization of the urgent necessity that exists for solving the question.

Of the waterways that have been proposed, the Ottawa River route is represented by its friends as of practical solution and as likely to afford one of the shortest, best, and cheapest waterways from the lakes to tidewater.

According to surveys made, only twenty-nine miles of canal are required to open navigation from Lake Huron to Montreal, via the French and Ottawa Rivers. Several millions of dollars have already been expended on the eastern portion of the route by the Canadian Government, and, on that part canals are in operation which would merely require enlargement to furnish a deep-water channel. Thus, of the 29 miles in all, 8½ miles are already in operation, with 14 feet depth of water, and 5½ miles with 9 feet, leaving only 15 miles to be constructed to link the present navigation of the lower reaches of the Ottawa with Georgian Bay.

The distance from Georgian Bay to Montreal is 430 miles. The water route from Montreal to Liverpool is 450 miles shorter than that from New-York to Liverpool. The distance from Chicago to Montreal by the Ottawa is nearly 450 miles less than that from Chicago to New-York by the Erie Canal. This means a total saving by the Ottawa route of little short of 900 miles on the through trip to Liverpool. Practically, it is equivalent to more than 1,000 miles saved, for there are 350 miles of canal on the Erie route and only 29 on the other. Suppose two grain-laden vessels to leave Chicago together, one for each route. The one via New-York has a lake journey of 920 miles to Buffalo, the other one of only 550 miles to the French River. To reach New-York the former vessel, even were the Erie Canal enlarged to such a capacity as to render her continuance by that route possible, has yet to pass through 350 miles of canal and 145 miles of the Hudson River, 495 miles in all; while the vessel proceeding by the northerly route has only 29 miles of canal and 400 of open river and lake to traverse before reaching Montreal. Finally, the northern vessel discharges her cargo on shipboard



Map of the Proposed Ottawa and French River Waterway to Connect the Great Lakes and the Atlantic Ocean.

450 miles nearer market than the southern one. This shows a marked advantage in every section of the journey in favor of the Ottawa route.

The following comparison of the four practicable ways of connecting the Hudson with the lakes shows the distance by the several routes:

DISTANCES—CHICAGO TO NEW-YORK.

| | Canal. | Lake and River. | Total Miles. |
|---|--------|-----------------|--------------|
| 1—Via Ottawa and French Rivers and Lake Champlain.... | 120 | 1,228 | 1,348 |
| 2—Via the Erie Canal and Hudson River..... | 350 | 1,065 | 1,415 |
| 3—Via Welland Canal and Erie from Oswego..... | 230 | 1,215 | 1,445 |
| 4—Via the St. Lawrence and Lake Champlain..... | 163 | 1,441 | 1,604 |

Compared with its competitors as a through route from Chicago to New-York, the Ottawa will be seen to be 250 miles shorter than the St. Lawrence, and to have 43 miles less of canals. The lockage is less on the St. Lawrence, but not sufficiently to counterbalance so great a difference in length and quantity of canalizing. The route via Oswego is 100 miles longer than the Ottawa route, and has 110 miles more of canal, while the Erie route from Buffalo is 70 miles longer and has 230 miles more of canal. Counting one mile of canal navigation as fairly equivalent to three miles of open river and lake in point of expense, time occupied, &c., the Ottawa route would be equal to 1,588 miles, that via Oswego to 1,905 miles, the St. Lawrence to 1,930 miles, and the Erie to 2,115 miles of lake and river navigation.

In a report prepared under the instructions of the Canadian Government some years ago, and based on careful surveys, T. C. Clarke estimated the cost of completion of a twelve-foot channel from Georgian Bay to Montreal at \$12,000,000. Other plans have been submitted involving larger outlay. But one of the most recent estimates sets the outside figure of the necessary expenditure at \$15,000,000. This would complete the link between lake and ocean traffic, and give the shortest possible grain route. To connect New-York with that system would require the construction of a canal thirty-two miles in length, from Lake St. Louis, on the St. Lawrence, to St. Johns, on the Richelieu River, at the level of Lake Champlain, and the enlargement of sixty-six miles of canal between Lake Champlain and the Hudson. Should the Hudson River be used to a greater extent in the formation of a deep channel, so as

to lessen the amount of canal required at this point, the advantage of the Ottawa route over the Erie would be the more increased.

Surveys were made years ago for a canal connecting Lake St. Louis with Lake Champlain. In a recent article in *The Albany Times-Union*, Col. John B. Riley, United States Consul General at Ottawa, after careful examination of the various reports, estimates the cost of completion of a fourteen-foot channel at \$7,500,000. The estimated cost of enlargement to fourteen feet depth of the canals from Lake Champlain to the Hudson being \$15,000,000, a total expenditure of \$37,500,000 would complete and connect with New-York the Ottawa highway for water traffic from the lakes to the Eastern seaboard.

The character of the Ottawa River is such as to lend itself readily to the formation of one of the most perfect systems of inland navigation in the world. It consists almost altogether of stretches of deep and still water, interrupted by rapids and falls, which are easily overcome by locks and dams. The only work to be done is in getting from one lake to another. Thus on the route the following, besides smaller lakes, are passed through: Lake St. Louis, 13 miles in length; Lake of the Two Mountains, 25 miles; Deschênes Lake, 27 miles; Chats Lake, 19 miles; Coulonge Lake, 20 miles, and Lake Nipissing, 40 miles, making a total of over 140 miles. For the most part these lakes have a channel depth of from 20 to 20 feet at low water, very few spots having as little as 14 feet.

Long stretches of the river, also, are equal to the very best lake navigation. Such a one is that part known as Deep River, nearly 30 miles in length, very straight, from 1,000 to 2,000 feet wide, and of very great depth, said to be over 100 fathoms in some places. The shores at this point are bold, and the scenery resembles that of the Saguenay on a small scale. Everywhere, by means of dams, a slack-water navigation of sufficient depth can be more readily and cheaply obtained than on any other route. Competent engineers say that the difference in cost between an eighteen-foot channel and a nine-foot one would not be so great as in ordinary cases, and that, if made for the latter, probably 75 per cent. would be available for the former without further improvement.

Another point is that the Ottawa is a

river of steady, even flow, and not subject to sudden rise or extraordinary floods. Its rise never averages over three inches in twenty-four hours for any number of days in succession, and is commonly one inch per day, while its rise to high-water mark and subsequent fall occur every year at nearly the same dates. The most prominent characteristic of the Ottawa is its great volume, even in its upper reaches. Draining an area of 80,000 square miles, and fed by countless lakes, it furnishes water supply ample in the time of lowest water. The French and Mattawa Rivers, through which the course is continued, are of the same general character—namely, consisting of a series of lakelike expanses, separated by rapids.

The summit level is obtained by bringing to the same height Trout Lake and Lake Nipissing, the latter a fine sheet, 60 miles in length and from 15 to 30 in breadth. Thus the summit supply will be practically inexhaustible, or, as expressed by the engineer, Mr. Clarke, "sufficient for any scale of navigation and for all time to come." According to a paper read last month before the Royal Society of Canada by Dr. R. W. Ellis, LL. D., M. A., of the Geological Survey of Canada, recent examination has disclosed a line where the summit ridge, between three and four miles in length, nowhere rises more than four feet above the level of Trout Lake. The mouth of French River, according to the report of Walter Shanley affords ideal facilities for a terminal harbor. The hydrographic survey of Georgian Bay was completed in 1894, and lighthouses are already in position, marking the channel to the entrance of the river.

Experienced forwarders advocate the use on the route of strong tugs conveying fleets of three barges, each with a capacity of 50,000 bushels, and estimate that grain can be profitably carried from Lake Huron to Montreal at a rate of 1½ cents per bushel, making possible a through rate from Chicago to tidewater of less than 4 cents per bushel, as against 6½ by the cheapest American route, and 7 by the St. Lawrence. According to the report of the New-York Produce Exchange, 2-3 of a cent per bushel is enough to turn the current of trade, so that the Ottawa route could command a large share of the through grain trade. The items chiefly conducive to lower cost of transportation are the

great saving of distance already shown; the saving of time on the journey, estimated to be nearly five days over the Erie route, and consequently the larger number of trips possible in the season, which, for the whole Ottawa system, would be practically the same as that of the Sault Canal; decreased cost of towing from employment of the most economical form of vessel known, discharging directly over the ship's side in harbor, and the small amount of canaling to be done. In addition to these, there is the greatest security of the route to be considered, tending to lower insurance rates, the risks being the minimum possible. Grain passing in so much shorter time through the cooler, deeper waters of this northern route would reach its destination in good condition.

As the Canadian Northwest fills up with settlers, the centre of the wheat-growing area will move steadily northward year by year. J. A. Taylor, United States Consul at Winnipeg, says in his report of 1892: "The day is near at hand when American farmers must meet such competition as they never met before, and such as few of them have ever dreamed of. The parallelogram included between longitudes 100 and 170 west of Greenwich and latitudes 50 to 70 degrees is identical in climate with and as rich in resources as an equal area in Europe included between the same meridians of latitude and extending 68 degrees east and 10 degrees west of Greenwich. The European parallelogram includes England, Ireland, Scotland, Denmark, Norway, Sweden, Belgium, Holland, and most of Germany and Russia in Europe. Over all the territory included in the North American parallelogram the opening of Spring occurs at the same time almost to a day. When once the conditions of soil and climate which there exist are supplemented by facilities for transportation, unsurpassed if equalled by those of any other region, I believe that the Canadian Northwest will settle up with a race of hardy, intelligent, and prosperous people, and will become the granary of the world."

The Illinois and Michigan Canal, little more than a ditch, transported 5,000,000 tons of freight from 1880 to 1885. If made a ship canal, serving as the link between two great systems of navigation, it would develop an enormous traffic, the benefit of which any system of waterway to the ocean must share. Besides the im-

mense through traffic that the advantages of the route must attract to it, much is to be expected from the development of the rich resources of the regions adjacent to the numerous and important tributaries of the Ottawa. The route passes through the heart of one of the richest lumber districts of the continent, and an extensive and valuable traffic must be afforded by the distribution of lumber and other forest products from the heavily wooded regions of Northern Ontario to the prairie States through Chicago and other markets. The pine woods of Michigan, Minnesota, and Wisconsin are fast disappearing, and the great extent of unbroken Canadian forest stretching far to the north must be more and more drawn upon. The growing importance of the pulp-wood industry will make the great quantities of spruce and poplar in that country a source of traffic and revenue; also the growth of the trade in hard woods for finishing furniture, &c.

The fact, also, that the Ottawa route will afford the most direct communication by water between the manufacturing New-England States and their market in the West must influence return traffic to it. Thus, from Chicago to ports on the east side of Lake Champlain, by the proposed route, as extended by the Caughnawaga Canal would be from 1,000 to 1,100 miles, with only 53 miles of canal, as compared with a distance of 1,300 to 1,400 miles, with no less than 420 miles of canal by the Erie route.

Tolls on traffic will not be the only source of revenue of the proposed system of canals. At such places as the Chaudière, Deschênes, Chats Falls, Rocher le Capitaine Rapids, and others magnificent water powers will be made available and can be turned to account in producing electricity for towing purposes, lighting of towns along the route, furnishing motive power for factories, and the operation of railroads.

The feasibility of opening the proposed route is beyond a question, its estimated cost within reasonable limits, and its advantages, both as a through commercial waterway and as a developer of local traffic, most marked. The Governor

General of Canada, the Earl of Aberdeen, who was a member of the Parliamentary committee on the Manchester Ship Canal, has evinced considerable interest in this waterway, as being of great benefit to the two neighboring countries. T. C. Keefer, C. E., C. M. G., ex-President of the American Society of Civil Engineers and one of the most talented of the older members of the profession in Canada, indorses the route. Walter Shanley, C. E., a well-known Canadian engineer and the successful designer and constructor of the Hoosac Tunnel, calls this great water route his "pet bantling." One of the joint editors of the Engineering News, published in New-York—A. M. Wellington, a hydraulic engineer—says about this route: "My conviction that the Ottawa River affords the best opportunity on the globe for a well-planned ship canal is a fixed one."

Some of the advantages claimed for the Ottawa route are:

It is nearly 900 miles shorter than the Erie route, with only one-tenth as much canalizing, enabling a saving of five days to be made on the trip to the seaboard.

By extension to connect with the Hudson it will give the shortest waterway between Chicago and New-York, and between the New-England States and the West.

In point of security, low cost of operation, cheapness of rates possible, and character of navigation it demands consideration.

It would prove an important factor in the development of a country rich in resources.

These and other advantages lead to the belief that if completed it would develop extensive traffic from the following sources: Through grain trade, lumber traffic to Chicago and other lake ports, as well as to New-York and New-England ports; carriage of ores and other mineral products, and transportation of coal from Lake Erie ports to Northern Ontario; trade between New-England and the West, and between Ontario and Quebec and the Canadian Northwest, and local traffic constantly increasing as the fertile northern districts become settled.

